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WHAT HAPPENS NEXT? DELIVERING ON THE PROMISE OF PRESCHOOL

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Abstract

Although scientific research has clearly shown that preschool programs prepare children for kindergarten, increasing attention has been drawn to whether these early investments in children's education have long-term impacts. Here, we argue that long-term impacts of preschool cannot be viewed in isolation from children's subsequent experiences and, in fact, are unlikely absent of continued investments in children's education. As part this commentary we focus on two key themes: (a) what we can expect from one year of preschool education; and (b) what happens after children enter elementary school. In addressing these themes, we contextualize the work of Lipsey and colleagues (2018) in the existing evidence base and discuss areas in need of continued empirical attention.

What Happens Next? Delivering on the Promise of Preschool

Decades of scientific research has shown that preschool programs prepare children for kindergarten, which has led to the expansion of preschool programs across the country (Duncan & Magnuson, 2013; Heckman, 2006), including those studied in Tennessee (Lipsey et al., 2018). However, with this expansion of preschool programs, there has been a downward trend in its benefits over time such that the impacts of contemporary programs—like those in Tennessee—are often small as compared with conventional standards (Duncan & Magnuson, 2013). Despite this downward trend in program benefits, there are only a few contemporary longitudinal and long-term preschool evaluations, which is why this work by Lipsey and colleagues (2018) contributes greatly to this literature on preschool expansion. The findings of this study also raise important questions that our field must grapple with, especially as we design and plan future expansion and evaluation efforts. Our commentary focuses on these future questions and how evidence from Tennessee and other recent large-scale community evaluations can shape the future of preschool education.

What Should We Expect from Preschool?

Similar to much of the existing evidence-base on preschool education (see Phillips et al., 2017 for a consensus statement), results from Tennessee reveal that preschool programs prepare children for kindergarten: children who attended preschool entered school demonstrating enhanced math, language, and literacy skills with an average treatment effect of roughly 20-35% of a standard deviation (*SD*; depending on the analytic specification). However, these results also parallel a number of other large scale correlational and experimental studies in the field (e.g., Head Start Impact Study, Tulsa, Early Childhood Longitudinal Study Kindergarten Cohort: Hill, Gormley, Adelstein, 2015; Magnuson, Ruhm, & Waldfogel, 2007; Puma et al., 2012), in that they show a clear pattern of convergence between children in the treatment and control

conditions across the early elementary school years. That is, although there was a strong pattern of impacts at the end of pre-kindergarten, these academic benefits rapidly converged to zero a year later and by the time children completed second and third grade, those children in the control group actually performed better than their peers in the treatment group on certain assessments. Thus, despite the immediate academic benefits of preschool participation, this initial boost did *not* result in later academic benefits for children.

This convergence in the benefits of preschool can occur for one of two reasons: *catch-up* or *fadeout* (see also: Ansari, 2018; Bailey et al., 2017; Barnett, 2011; Yoshikawa et al., 2013). Catch-up occurs when non-preschool attendees accelerate in their learning and development over time and make ground on their peers who attended preschool, whereas fadeout stems from slowed academic growth among preschool participants. Although both catch-up and fadeout can help us understand the nature of convergence, results from Tennessee (Lipsey et al., 2018) indicate that the convergence in this community largely occurs because nonparticipants catch-up with their classmates who attended preschool during the early elementary school years. We believe that this very rapid pattern of convergence between preschool attenders and their non-attending peers points to children's subsequent educational experiences as one of the possible determinants of whether the benefits of preschool attendance persists over time. Thus, we focus our discussion on why preschool effects do not persist over time as opposed to on within-preschool factors, which are also important and can improve the short- and long-term impacts of preschool. As part of this discussion, we focus on the role of the elementary school environment, children's individual experiences, and the educational policy landscape.

The role of the elementary school context. A number of recent studies have considered whether the long-term benefits of preschool vary as a function of children's subsequent

educational experiences, but the results have been ambiguous and likely reflect the various way in which different groups of researchers have defined ‘subsequent school experiences’, which often fall under two umbrellas.

The first type of research that has tried to address this possibility has focused on the broader elementary school context that children experience. This work has focused on a variety of factors that occur at the school-level, including social composition (e.g., racial/ethnic diversity, percent of children receiving free/reduced lunch), academic test scores, safety, and the climate (e.g., parent engagement, teacher turnover) as potential moderators and, overall, has found that children’s subsequent school environments matter (Ansari & Pianta, 2018a; Currie & Thomas, 2000; Johnson & Jackson, 2017; Lee & Loeb, 1995; Zhai, Raver, & Jones, 2012). More specifically, these studies find that the benefits of preschool are sustained over time, but only when children go on to attend higher quality elementary schools. For example, Zhai and colleagues (2012) find that the early language and literacy benefits of an early childhood program are roughly 70% of a *SD* greater at the end of kindergarten in high performing schools (as measured by school-level test scores) as compared with low performing schools. Despite these promising findings, only a handful of studies have considered the role of broader school quality in the persistence of preschool effects. Continued empirical inquiry is necessary because these broader school-level factors are somewhat distal to children’s everyday learning and, therefore, it is unclear how they translate into sustained preschool effects.

The second type of research focuses on the more proximal classroom environments that children experience as another potential explanation as to why preschool effects may diminish over time. As part of this effort, a small number of studies have focused on process quality, such as teachers’ day-to-day interactions with students (e.g., instructional support, emotional support,

classroom organization; Pianta, La Paro, & Hamre, 2008). For example, in our own work (Ansari & Pianta, 2018b), we have examined the multiplicative benefits of high quality teacher-child interactions across both the early and middle childhood years and have found that investments in the early years have sustained academic benefits, but only when coupled with higher quality classroom environments in elementary school. More specifically, results from our work revealed that the documented academic benefits of high quality child care at the end of preschool (roughly 7-8% of a *SD*) accumulated through age 15 when children later experienced higher quality classroom environments (roughly 18-20% of a *SD*), but for children without such experiences, the benefits of early child care converged to zero. Similar findings have also been documented when looking at children's socioemotional development: children who experienced higher emotional and organizational support in preschool *and* kindergarten demonstrated stronger social-behavior (roughly 10-15% of a *SD*) than children who only experienced one year of higher quality classrooms (Broekhuizen, Mokrova, Burchinal, Garrett-Peters, & The Family Life Project Key Investigators, 2016). Unfortunately, most studies, including longitudinal evaluations of preschool, do not collect data on the quality of children's classroom experiences from year-to-year, which prohibits us as a field from fully addressing the conditional benefits of quality preschool experiences. Thus, as a research community, we should pay closer attention to the additive and multiplicative benefits of teacher-child interactions across children's educational careers.

Scholars have also tried to capture other important classroom factors that may explain variation in long-term preschool effects (e.g., Bassok, Gibbs, & Latham, 2015; Claessens, Engel, & Curran, 2014). However, these studies have largely yielded no consistent evidence of heterogeneity. For example, Bassok and colleagues (2015) examined the persistence of preschool

effects for children who experienced a greater number of kindergarten transition practices (e.g., home visits, parent orientation prior to the school year) along with those who subsequently attended smaller classes or full day programs, but found no evidence of moderation. It is important to note that the lack of moderation does *not* imply that these aspects of kindergarten classrooms are unimportant for the early learning and development of young children, only that they do not help maintain the long-term benefits of preschool. Other educational scholars have also begun to consider the importance of instructional content in early elementary school (Bassok et al.2015; Claessens, Engel, & Curran, 2014) and have found that many kindergarten classrooms across the country cover basic instructional content that correspond to skills that preschool attenders may have already mastered (Engel, Claessens, Watts & Farkas, 2016). Somewhat surprisingly, although the content of instruction matters for the early learning and development of young children, there has been little evidence to suggest that these types of classroom processes account for the convergence seen in prior studies of preschool education (Bassok et al., 2015; Claessens et al., 2014). This lack of moderation as a function of instructional content may reflect data limitations, as these aforementioned studies have often been limited as a result of measurement (e.g., teacher report at one point in time). For these reasons, it is also of growing importance that as a field we revisit the tools we use to measure children's classroom experiences, both before and after the transition to kindergarten.

The role of children's individual experiences. Despite these conflicting findings regarding heterogeneity in the persistence of preschool effects as a function of children's subsequent classroom and school experiences, this research is in its infancy because there are a number of other aspects of the classroom that have yet to be explored that may have implications for the sustainability of preschool effects. In particular, *children's individual experiences* in the

classroom, as opposed to classroom-level factors, have the potential to shed light on why convergence is such a common phenomenon in long-term preschool evaluations. Indeed, children who experience preschool may be perceived as doing better by teachers, and because of this, may end up 'getting less' in the classroom (Phillips et al., 2017). As Lipsey and colleagues (2018) note, the above is a commonly discussed theme in the field, but largely remains an empirically unexamined hypothesis. Collecting this type of data is admittedly resource intensive, but it is critical to enhancing our understanding of how preschool attendance shapes children's development once they enter elementary school. For example, redesigning classroom observations to focus on individual children's experiences can help us understand the variability of interactions children have with their teachers and peers, as well as help us understand their engagement throughout the school day. Supplementing structured quantitative work with in-depth qualitative research can also assist us in figuring out what factors are most likely to vary across individual students, and why they may do so.

To this very point, in our own qualitative work we have found that teachers in the early elementary school grades frequently discuss the unequal distribution of resources available to children (Purtell, Valauri, Drogalis, Justice, Lin, & Logan, 2018). For example, in our recent qualitative work across a Midwestern state, teachers discuss spending more of their time providing direct instruction to small groups of children who they perceive as struggling academically, whereas other more advanced students work individually or in small groups, or even with a parent volunteer. Although these time differences in any given day may be small, by the end of the year they accumulate and can result in a qualitatively different learning environment for some students in the classroom. We have also found that teachers often talk about the use of intervention specialists, or other additional teaching personnel, who work one-

on-one in pullout sessions with students who are struggling, which again highlights the uneven distribution of resources (Purtell et al., 2018). Based on these interviews, it stands to reason that if children enter kindergarten with advanced academic abilities as a result of their enrollment in preschool, they may have a different, potentially less individualized, educational experience than their classmates who did not attend preschool during the year prior. Put another way, if children who are struggling get extra assistance in kindergarten, then this might result in the catch-up pattern of convergence in academic test scores because non-preschool attendees may accelerate in their learning over time and catch-up with their classmates who experienced preschool.

Reflecting these very points discussed by teachers, separate qualitative work we have completed in a large southwestern state reveals similar responses from low-income immigrant parents as well (Ansari, Pivnick, Gershoff, Crosnoe, & Orozco-Lapray, 2018). Specifically, parents who participated in our focus groups were well aware of the fact that one year of preschool, in isolation from other investments, was unlikely to have long-term benefits for their children—that following up high quality preschool with low quality public school education was detrimental for their children's long-term school success. Parents were also well aware of the unequal distribution of resources during the early elementary school years. As one mother noted:

> "When a child enters kinder[garten] and is in a group where the rest of the children did attend pre-K, those kids are already advanced. What happens there? The teacher falls behind too much with that child, because she must focus on that child that does not even know how to hold a pencil."

Across both of these communities, it is evident that teachers must make decisions on how to teach to children with varying skills and needs, and parents are cognizant of how these decisions effect their own children. For these reasons, collecting detailed empirical data that documents

variation in children's classroom experiences in elementary school is a necessary step towards understanding why patterns of convergence between preschool attenders and non-attenders is so common in early education research.

Other educational policies. In addition to understanding children's individualized experiences, we must also recognize policies and programmatic decisions that are shaping children's elementary school environments and may have ramifications for the sustainability of preschool effects. As one example, states often begin standardized testing in third grade and how children perform on the high stakes exams has become part of the fabric of the American educational institution. One implication of this emphasis on high stakes testing is that elementary schools are now assessing their students early on in their educational careers, often as early as kindergarten entry (Datnow & Hubbard, 2015). And although these assessments can provide helpful information about what children know and are able to do, they may also be used to direct resources to students who are at greater risk of not passing the exams in third grade. Some states have attached even greater consequences to these exams and mandate that children reach a certain score in third grade or they are retained. These 'reading guarantees' have been implemented in multiple states, including Ohio and Florida, and not only direct districts to allocate their available resources to reading and literacy development, but also potentially to children who are deemed at risk of not passing. Put another way, these policies are likely to provide further incentive to K-3 teachers to focus on students who are struggling, as they are at the greatest risk of not passing these assessments. Although this practice may be a well-intentioned decision, it has potential implications for the long-term effects of preschool. If children who attended preschool are considered less at risk when they enter elementary school

because of the boost they received, they may be more likely to receive less individualized, and potentially enriching, educational experiences.

What Defines Success for Preschool?

One of the many strengths of this evaluation by Lipsey and colleagues (2017) is the breadth of outcomes they assessed and reported on. Although our traditional assessment measures, such as the Woodcock Johnson Battery (Woodcock, McGrew, & Mather, 2001), are useful because of their ability to document growth in development, their importance to children's 'real world' development is far more ambiguous. The authors' inclusion of third grade standardized test scores provides an important advancement, as we know that these tests play a large role in schools' decision-making. It is disheartening to see that children in the treatment group score significantly lower in their math and science achievement tests than their control group peers and this finding certainly warrants further investigation. As part of this effort, we also urge researchers in the future to think more carefully about what is a meaningful change in children's educational careers. One such example is assessing the degree to which preschool programs provide children with the skills necessary to succeed and avoid imminent risks and setbacks, such as passing or failing the standardized tests, which might prove to be more important for children down the line (see also: Bailey et al., 2017) than a small boost in their math and literacy test scores. By focusing in on these more meaningful changes in children's schooling, then the skill boost does not have to be permanent for programs to be deemed "successful". For example, if preschool programs reduce children's likelihood of grade retention because children are more likely to pass the standardized tests, then these programs have altered children's trajectories in a fundamental manner that likely has long-term cascading effects that

are more meaningful than any small boost that these programs may have for their academic achievement (Bailey et al., 2017).

We are also excited to see that the authors of this study are planning on and able to follow this group of children as they progress throughout their educational careers and transition to middle school. The lack of recent experimental evidence on long-term influences of preschool participation on development is a glaring gap in the field. As has been widely discussed, early, small scale, preschool programs, such as Perry Preschool, also showed convergence on cognitive measures during the school years, but found a wealth of other effects that appeared later on in the life course including reduced rates of criminal activity, higher rates of high school graduation, and higher annual earnings (Schweinhart, Montie, Xiang, Barnett, Belfield, & Nores, 2005). Although at scale programs differ widely from these early demonstration programs, these longer-term effects have also been documented in rigorous non-experimental research. For example, studies comparing children who attended Head Start with their siblings who did not found that Head Start attendees had increased educational attainment and better health (effect sizes of roughly 25% of a *SD*; Deming, 2009). Other non-experimental research also shows that high quality early childhood environments have sustained, albeit small effects (roughly 10% of a *SD*), such that children who experience higher quality child care earn higher grades at the end of high school and enter more competitive universities (Vandell, Burchinal, & Pierce, 2016). Thus, despite differences in design and scope, what these results suggest is that contemporary preschool programs may also generate long-term outcomes even in presence of convergence on academic measures during the early elementary school years.

Unfortunately, many of these studies (e.g., Deming, 2009; Garces Thomas, & Currie, 2002, Vandell et al., 2016) use outdated samples and capture children's experiences prior to

recent expansions of state- and city-funded preschool, in large part because studying the long-term effects of preschool is a long-term investment on behalf of the research community. Many of the current preschool programs are far too new for these types of longer-term evaluations and, therefore, the question of whether there are long-term effects—and what helps sustain these benefits—into adolescence and young adulthood remains unanswered. Recent work from Tulsa, Oklahoma has started to examine some of these possible mechanisms and longer-term outcomes. Using quasi-experimental methods, researchers found that children who attended Tulsa's preschool programs: (a) scored 10% of a *SD* higher on standardized assessments of math; (b) were 6 percentage points more likely to take honors courses; and (c) were 7 percentage points less likely to be retained (Gormley, Phillips, & Anderson, 2017). Although the effect sizes for the benefits of Tulsa's preschool programs on middle school performance were not large by traditional standards (see Duncan & Magnuson, 2013), this work represents an important step in our understanding of potential lasting impacts of preschool attendance. Moreover, despite these relatively small to modest effects, a cost-benefit analysis of these programs reveals that these reductions in grade retention are projected to have future benefits in earnings and crime reductions that exceed the costs associated with the program by about 2-to-1 (Bartik, Belford, Gormley, & Anderson, 2017).

Understanding the impact of preschool on children's socio-emotional development is also important given its long-term ramifications for children's educational success and well-being (for a review see: Domitrovich, Durlak, Staley, Weissberg, 2017). Whether preschool has positive or negative social-behavioral effects, however, is not clear (Phillips et al., 2017; Yoshikawa et al., 2013). For example, some developmental and educational scholars have found that preschool attendance is linked with *more* behavior problems (Bassok et al., 2015; Magnuson

et al., 2007; National Institute of Child Health and Human Development Early Child Care Research Network, 2003), whereas others have found that preschool enrollment is linked with more optimal social-behavior (Ansari et al., 2017; Gormley, Phillips, Newmark, Welti, & Adelstein, 2011; Puma et al., 2012). These differences may emerge for a variety of reasons, including the content covered by these socio-emotional measures, the overall quality of measurement, the focus of programs (e.g., programs with or without an explicit focus on improving social behavior), and the population of children served (Yoshikawa et al., 2013). Despite these potential explanations, this inconsistency in the literature regarding the socio-emotional impacts of preschool enrollment requires much closer attention because if preschool has negative short-term effects, this can (and likely does) have downstream effects for the persistence of preschool effects.

As just one example, data from the Early Childhood Longitudinal Study Kindergarten Cohort of 1998 reveals that although the academic benefits of preschool persist from kindergarten (roughly 20% of a *SD*) through early adolescence (roughly 10% of a *SD*), one of the underlying reasons for the partial convergence in academic test scores stems from the negative effects of preschool participation for children's social-behavioral development (Ansari, 2018). That is, the long-term positive academic benefits of preschool are partially offset by the fact that preschool attendees demonstrate less optimal social behavior upon kindergarten entry, which in turn results in them making fewer gains in math and reading throughout their educational careers (Ansari, 2018). Perhaps these cascading effects stem from the fact that children's social behavior can influence how those around them, including their teacher and peers interact with them, which may lead to less optimal academic growth. Conversely, the academic benefits of preschool may influence children's social behaviors in the early elementary school years. Specifically, if there is

a lack of alignment between preschool and kindergarten programs, preschool attendees may be more likely to disengage within the classroom across the kindergarten year (Abry, Latham, Bassok, LoCasale-Crouch, 2015). This may have long-term negative consequences and might explain some of the reversal of effects seen in Tennessee.

Given prior evidence from small-scale studies and emerging work from Tulsa and other national data, we encourage researchers in the field to think more broadly about the myriad of outcomes to measure as children progress throughout their educational careers. In particular, we argue that giving weight to real world indicators, as Lipsey and colleagues (2018) have already done, is of great importance for pushing the early childhood field forward. Continuing to study attendance and special education placements is important and incorporating other school-based outcomes, such as retention and course taking patterns, will help us understand the pathways that youth are on that have downstream effects for their educational careers. Beyond these educational markers, developmental theory also suggests that children's early experiences have implications for other areas of development, such as their health and well-being. Thus, in addition to considering children's academic and socio-emotional development, future preschool evaluations should consider outcome measures such as systolic and diastolic blood pressure along with cortisol, which are all outcomes that have been found to improve in the long-term as a result of preschool participation (Sabol & Hoyt, 2017).

Delivering on the Promise of Preschool

In recent years, researchers have repeatedly argued that empirical evidence supports investments in preschool (Duncan & Magnuson, 2013; Phillips et al., 2017; Yoshikawa et al., 2013). At the same time, however, a number of rigorous studies of Head Start and other preschool programs from local communities, such as Tennessee, have shown that preschool

effects on academic outcomes do not last through the early elementary school years. These results raise serious questions about where we go from here as a field. As discussed above, to push the early childhood field forward and deliver on the promise of preschool, there are a number of steps we must take as a researchers. To recap, as researchers, we must:

1. Be ever vigilant that we avoid contributing to the over promise of one year of preschool education.
2. Pay closer attention to the additive and multiplicative benefits of children's experiences throughout their educational careers.
3. Create better measures of classroom experience that allow for a more detailed understanding of children's day-to-day experiences in school, at the classroom and especially at the individual child-level.
4. Consider the implications of other educational policies and practices for the long-term effects of preschool.
5. Think more broadly about the myriad of outcomes to measure as children progress throughout their educational careers.

The first and perhaps most important point of consideration is how our current research studies and their findings align within the current preschool policy landscape. Now more than ever we must be ever vigilant that we avoid contributing to the over promise of one year of preschool. Indeed, a commonly discussed policy question is whether or not investment in preschool expansion will help children, and their communities, in the long run. As discussed above, most graduates of state- and federally-funded preschool programs are not yet old enough for these types of questions to be addressed and therefore, the benchmarks we rely on are more

often than not from (or are largely driven by) older and small-scale programs (e.g., McCoy et al., 2017).

Moreover, when states or cities use preschool expansion as a means to improve children's early learning and development, the primary mechanism they are using to do so is by providing preschool experiences for a greater number of children. However, in today's society, many children who do *not* receive access to preschool through these initiatives and/or funding sources, do receive other types of preschool education. This changing counterfactual means that in many of our evaluations, the control group includes a mix of children who have different types of care arrangements and making statements about the efficacy of preschool is an increasingly complicated endeavor (Duncan & Magnuson, 2013). This is further compounded by the fact that children's home lives have also changed dramatically and have become more educational in nature (Bassok, Finch, Lee, Reardon, & Waldfogel, 2016). Consequently, even the counterfactual children who have no alternative preschool experience have access to more educational resources. For these reasons, the bar for success has been raised considerably for contemporary preschool programs as compared with decades past. Given the changing landscape of early childhood education, as a field we must ask ourselves whether the benchmarks put forward by Perry Preschool and Abecedarian are still relevant today. At the same time, however, as preschool becomes more accessible through expansions of publicly funded programs, children may enter kindergarten with less variation in skill and experience. This in turn may make it easier for kindergarten teachers to maintain and build on the skills that preschool attendees bring into school.

Finally, the question of what can we expect to last over time needs to be discussed with policymakers. Although preschool has been shown time and time again to prepare students for

kindergarten, without sustained, aligned investment in children's education—which is a rarity in the American educational system (Ansari & Pianta, 2018b; Pianta, Belsky, Houts, & Morrison, 2007)—the original investment in preschool cannot reach its full potential. Continuing to address these concerns with policymakers and the public is critical to ensuring that we set realistic expectations of preschool programs so that all children can succeed in school. As part of this effort it is also important that we more carefully think about preschool and elementary school education as complimentary investments because to think that a one year preschool program will have long-term impacts—absent of other supports—would be "to believe in magic" (Brooks-Gunn, 2003).

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